

YOR920000776US1

**EXPEDITED ACTION: AFTER FINAL**

00280677aa

Amendment dated 03/04/2005

Reply to office action mailed 01/04/2005

**REMARKS**

Claims 1 and 9-14 are currently pending in the application. By this amendment claims xxx are amended for the Examiner's consideration. The foregoing separate sheets marked as "Listing of Claims" shows all the claims in the application, with an indication of the current status of each .

The Examiner has indicated that the title should be brief, descriptive and technically accurate. The invention distinguishes itself from the prior art – including the Linden reference cited by the Examiner – **by estimating renewal buying separately from associative buying**. The title was amended to reflect this aspect of the invention. The Examiner did not approve of the new title, but did not give reasons for his disapproval. Further, the Examiner proposed a title that is less descriptive and less accurate than the title proposed by the applicant. Consequently, the applicant respectfully requests that the Examiner reconsider the title proposed by the applicant, which proposal is herewith renewed.

The Examiner continues to reject claims 1 and 9-14 under 35 U.S.C. §101 on the ground that the claimed invention is directed to non-statutory subject matter. In particular, the Examiner had argued that the original claims pertained to a manual process and therefore do not fall within the technological arts. The claims were amended in response to the first office action to overcome this ground of rejection by making clear that the method relies upon the technological arts. In particular, the limitation "by automated means" was added to the claims. The Examiner asserts that this is not sufficient, indicating that 1) there is no apparent description for "automated means" in the specification and 2) automation does not necessarily imply that hardware is being used.

However, contrary to the Examiner's assertions, "automated means" does indeed imply hardware, especially in view of the description provided by the specification. The first line of the application is:

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The present invention generally relates to a **computer method and system** for placing order for products over a **computer network** (emphasis supplied).

At the end of the background section, it is noted that “[a]ll the prior art in so called collaborative filtering techniques require a substantial amount of computation.” No one skilled in the art would understand this to be other than computation by computer. Further, the disclosure (and the claims) provide extensive detail on formulae that one skilled in the art could only infer a computer implementation. At page 5, lines 8-9, there is reference to “efficient computation.” Again, no one skilled in the art would fail to conclude that this means computer performance, and the efficiency of performance of the computer. At page 6, line 13, there is reference to one of the matrix variables as being “precomputed and stored,” implying not only computer hardware but a storage device as well. Similar references are at page 8, lines 6-8; page 9, lines 5-8; and page 10, line 13. Finally, at page 13, lines 2-4, it is noted that

“One skilled in the art can utilize many techniques to reduce the **storage requirement** to process the present invention when the number of items is very large ...”

It is evident from the foregoing that the specification contains ample description to support the common understanding for the term “automated means” as meaning a computer implementation. Indeed, the nature of the invention does not admit of any other interpretation. The Examiner has not produced any evidence in support of a contrary interpretation. It is therefore submitted that this ground of rejection is overcome, and it is respectfully requested that the Examiner reconsider and withdraw this ground of rejection..

The Examiner maintains rejection of claims 1 and 9-10 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,266,649 to Linden. However, the Examiner has not acknowledged the applicant’s claimed distinction: **estimating renewal buying separately from associative buying**. As should be clear from the claims – taking the language of claim 1 to illustrate the point:

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1. A method for making prioritized recommendations to a customer in the process of filling a market basket for purchase on an Internet commerce site, the method comprising the steps of:

generating by automated means a matrix of training data;

determining by automated means preferences for items not in said market basket based on associative and renewal buying history from the training data, **said preference for each said item being determined by separately determining a preference for renewal buying and combining said separately determined preference for renewal buying with a separately determined preference for associative buying**, wherein said preference for associative buying is dependent upon items in said market basket and said preference for renewal buying is not dependent upon items in said market basket ; and

making by automated means, and from said item preferences, a prioritized recommendation of items so as to maximize the likelihood that the customer will add to the market basket those items with higher priorities.

The limitation of separately determining, for each item, the preference for renewal buying (which is not dependent upon items in the basket) and the preference for associative buying (which is dependent upon items in the basket) is clearly and precisely stated. The prior art – including Linden – does not make this separate calculation for each item. There is nothing in the Examiner's response which addresses this distinctive aspect of the present invention. It is respectfully requested that the Examiner reconsider the applicability of the Linden reference in view of this claimed limitation of the invention. It turns out that this limitation is more accurate as a predictor as well as more computationally efficient.

Linden does not describe or suggest this approach, as is clear from review of the citations adduced by the Examiner. Linden generates personalized recommendations of items based on the collective interests of a community of users, where the recommended items are identified using a mapping structure which maps individual items to lists of similar items, and where the similarities are based upon correlations between the interests of users in particular items. Linden focuses on the particular customer's item buying history and "associated items" via the commonality

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index, CI. The Linden reference itself points out (col. 3, line 31) that CI computation is intensive and therefore suggests a number of run time updating tricks. The table is still a very large amount of data to be stored. Furthermore the **CI computation does not separate the preferences of renewal and associative tendencies: instead, it lumps the two in it's estimation.** According to the present invention, the Linden approach therefore results in a less accurate calculation of the overall item preference. The present invention determines preference for **each item** from two separately calculated components (renewal, which is not dependent upon items in the basket, and associated, which is dependent upon items in the basket) to be more accurate. The associated component, as the name indicates, is a preference by association with existing items in the basket in progress (page 3, lines 1-2), whereas the renewal component reflects independently exercised purchases (page 3, lines 2-3), where the basket content is immaterial for the preference assigned to any item not already in the basket (page 4, lines 19-20). The separate consideration of these components (page 4, lines 12-14) is an aspect of the invention not present in Linden or other prior art.

The claims make this aspect of the invention clear, as shown above with respect to claim 1. It is important to emphasize the point: the preference for **each item** is obtained by separately calculating the preference for renewal buying and the preference for associative buying, and then combining them. The separateness of the calculation clearly highlights the dependence upon items in the basket. As new items are added to the basket, the associative buying estimate (which is dependent upon items in the basket) for a particular item may change, but the renewal buying preference estimate (which is not dependent upon items in the basket) will not. Thus, the calculation **for each item** will be computed again each time an item is added to the basket. That is the teaching of the invention, and that teaching is claimed. A careful examination of Linden and the other art of record clearly shows no such teaching in the prior art.

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It may be noted that U.S. Patent No. 6,041,311 to Chislenko referenced by the Examiner is no different than the other prior art in estimating the "related" buying preference. It also concentrates on the customer's own purchase history and own past item ratings. Chislenko's item similarity matrix corresponds to the CI of Linden, however, with similar computational complexity no matter which one of many alternatives he discloses are used. This reference does not disclose or suggest the separation of renewal versus associated buying preferences.

The Examiner has rejected claims 11-14 under 35 U.S.C. §103(a) as being unpatentable over Linden. Since claims 11-14 depend from claim 9, which is now believed to be in allowable form, the Examiner's rejection of these claims is also overcome. It will be observed, with the amendment to claim 9, that the mathematical aspects of claims 11-14 confirm the separate consideration given to the renewal and associative components of the probabilities that an item not yet in the basket will be selected by the customer.

In view of the foregoing, it is requested that the application be reconsidered, that claims 1 and 9-14 be allowed, and that the application be passed to issue.

**Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at 703-787-9400 (fax: 703-787-7557; email: clyde@wcc-ip.com) to discuss any other changes deemed necessary in a telephonic or personal interview.**

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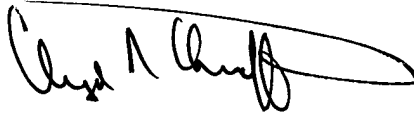
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If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account 50-0510 (IBM-Yorktown).

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Clyde R Christofferson', with a long horizontal flourish extending to the right.

Clyde R Christofferson  
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